

AMENDMENTS TO CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Currently Amended) A method of determining, in a communications network, an upstream station, among several other candidates, traversed by a packet having a ~~TTL~~time-to-live (TTL) field arriving at a downstream station, comprising the steps of:
 - a) marking the TTL field of the packet flow arriving at the upstream station, in a manner that uniquely identifies the upstream station among all the other concurrently marking upstream stations;
 - b) receiving and identifying at the downstream station a marked packet flow; and
 - c) determining, depending upon the TTL field of the marked packet flow received, that said packet flow traversed the upstream station;

wherein the TTL field of the marked packet is identified by looking for constant shifts in statistical parameters and in the distributed TTL value with marking turned on and turned off.

8. (Original) The method as defined in claim 7 wherein step c) involves comparing the value of the TTL field of packets in a flow to which said packets belong with an without marking being performed, thereby enabling the manner of marking, which identifies the upstream station, to be determined.

9. (Original) The method as defined in claim 10 wherein for flows with randomized TTL values the marked packet is identified by looking for constant shifts in parameters of statistical distribution of TTL values with marking turned on and turned off.

10. (Currently Amended) A method of determining, in a communications network, an upstream station, among several other candidates, traversed by a packet having a ~~TTL~~time-to-live (TTL) field arriving at a downstream station, comprising the steps of:

- a) marking the TTL field of the packet flow arriving at the upstream station in a manner that uniquely identifies the upstream station among all the other concurrently marking upstream stations; and
- b) receiving and identifying at the downstream station a marked packet flow; and
- c) determining, depending upon the TTL field of the marked packet flow received, that said packet flow traversed the upstream station; and comparing the value of the TTL field of packets in a flow to which said packets belong with an without marking being performed, thereby enabling the manner of marking, which identifies the upstream station, to be determined;

wherein each upstream marking station is assigned ~~k~~a plurality of values $V_i \{V_1, V_2, \dots, V_k\}$ and ~~k~~associated ratios $R_i \{R_1, R_2, \dots, R_k\}$, where the sum of all ~~k~~said associated ratios R_i is 100%; and the marking station marks R_i a percent of the packet flow given by one of said associated ratios with a V_i value a corresponding one of said values, thus uniquely identifying its marking.

11. (Currently Amended) The method as defined in claim 10 wherein the marking station uses a plurality of different marking schema and wherein marking of packets is performed using in succession a different one of said schema over a ~~like~~ plurality of consecutive time windows.

12. (Canceled)

13. (Previously Presented) The system as defined in claim 16 wherein the value of the marked packet is assigned dynamically by an external entity.

14. (Previously Presented) The system as defined in claim 16 wherein the upstream station to mark packets is selected by the external entity.

15. (Previously Presented) The system as defined in claim 16 wherein the upstream station to mark packets is selected by a group of network edge stations marking concurrently.

16. (Currently Amended) A system for determining, in a communications network, an upstream station, among several other candidates, traversed by a packet having a time-to-live (TTL) field arriving at a downstream station, comprising:

- a) means for marking the TTL field of the packet flow arriving at the upstream station, in a manner that uniquely identifies the upstream station among all the other concurrently marking upstream stations; and
- b) means for receiving and identifying at the downstream station a marked packet flow; and
- c) means for determining depending upon the TTL field of the marked packet flow received that said packet flow traversed the upstream station;

wherein the upstream station to mark packets is selected by a group of network edge stations marking concurrently with a common primary mark and one selected station of the group using a secondary unique mark, the selection of the station using the secondary mark rotating among stations of the group.

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17. (Previously Presented) The system as defined in claim 16 wherein the downstream station is one of an edge router; a last mile router; receiving device and a network management system.

18 (Previously Presented) The system as defined in claim 16 wherein the upstream stations, also referred to as marking station, is one of a generic router; a core router; an edge router; a single network interface; a last mile router; and a network appliance.